

Claims

We claim:

- 1 1. A method for generating FSK symbols in a communications network,
2 comprising:
3 partitioning a plurality of complex values representing OFDM tones
4 into a plurality of groups;
5 assigning a distinct energy to each group of complex values;
6 applying an OFDM modulator to the plurality of complex values
7 having the assigned distinct energies to generate FSK symbols
8 corresponding to the plurality of groups; and
9 transmitting the FSK symbols serially.
10
- 1 2. The method of claim 1, in which the OFDM modulator includes a single
2 IFFT, and the distinct energies are assigned to each group according to a
3 data stream.
4
- 1 3. The method of claim 1, in which the OFDM modulator includes a
2 plurality of IFFTs operating in parallel, and outputs of the plurality of IFFTs
3 are selected according to a data stream.
- 1 4. The method of claim 1, in which a duration of each FSK symbol is
2 smaller or equal to a duration of an OFDM symbol for which the OFDM
3 modulator is designed.
- 1 5. The method of claim 1, in which there are 128 tones and two groups.

1 6. The method of claim 2, in which a duration of each FSK symbol depends
2 on a spacing of the tones.

1 7. The method of claim 1, further comprising:
2 detecting the FSK symbols in a OFDM receiver.

1 8. An OFDM transmitter for generating FSK symbols in a communications
2 network, comprising:
3 means for partitioning a plurality of complex values representing
4 OFDM tones into a plurality of groups;
5 means for assigning a distinct energy to each group of complex
6 values;
7 an OFDM modulator configured to apply OFDM modulation to the
8 plurality of complex values having the assigned distinct energies to generate
9 FSK symbols corresponding to the plurality of groups; and
10 means for transmitting the FSK symbols serially.